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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,357	11/20/2003	Israel Levy	150.002	1664

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Rashida A. Karmali
13th Floor
99 Wall Street
New York, NY 10005

EXAMINER

VALENTI, ANDREA M

ART UNIT	PAPER NUMBER
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3643

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/718,357	Applicant(s) LEVY, ISRAEL	
	Examiner Andrea M. Valenti	Art Unit 3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

4

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-6, 12, 16, 17, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has stated "a plurality of large cultivation tanks aerated with air having a volume capacity of about four hundred liters". Do each of the tanks have a 400 liter capacity or is it total capacity of all of the tanks together? Applicant has interpreted it to mean a total capacity for all of the tanks together, clarification requested.

Claims 3-6, 12, 16, 17, and 18 are rejected as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 12-15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,358,858 to Meng et al in view of U.S. Patent No. 3,195,271 to Golueke et al.

Art Unit: 3643

Regarding Claims 7, 9 and 10, Meng teaches a method of cultivating seaweeds in land based sea water ponds by producing spores and sporelings in cultures maintained in a laboratory facility (Meng Col. 2 line 22); growing the sporelings in a suspension culture under optimal growth conditions (Meng Col. 2 line 25-26); transferring the matured sporelings to large cultivation tanks that are aerated with air (Meng Col. 3 line 21 "fresh air 300ml air/min" flow rate) to allow for rapid growth (Meng Col. 2 line 39); harvesting; drying; and grinding (Meng Col. 2 line 4-6) to result in a product for human consumption or pharmaceutical use (Meng Col. 1 line 13).

Meng is silent on a plurality of cultivation tanks to allow for rapid growth yields of about 1kg/m²/week and the use of seawater as a medium. However, it would have been obvious to one of ordinary skill in the art to modify the teachings of Meng at the time of the invention with a plurality of tanks since the modification is merely the duplication of a known element for a multiple effect performing the same intended function. Modified to increase production yields. This limitation does not present a patentably distinct limitation over the cited prior art. [*In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960)].

Golueke teaches that it is old and notoriously well-known to cultivate the seaweed in seawater (Golueke Col. 1 line 67 and Col. 2 line 33). It would have been obvious to one of ordinary skill in the art to further modify the teachings of Meng with the teachings of Golueke at the time of the invention since the salinity is known to promote desired seaweed development and to inhibit the growth of other undesired algae as taught by Golueke (Golueke Col. 2 line 6). One of ordinary skill in the art would be

Art Unit: 3643

motivated to modify the teachings of Meng with the teachings of Golueke also based the location of the facility and readily available abundance of seawater.

Regarding Claim 20, Meng as modified teaches the seaweed product of *Porphyra* (Meng Col. 1 line 31 and Col. 4 line 66).

Regarding Claim 1, Meng teaches a system for land based cultivation of seaweeds by phycological laboratory facilities suitable to produce spores and sporelings in cultures (Meng Col. 3 line 6 and Col. 4 line 65-66); a plurality of sleeves (Meng Col. 2 line 31) housed in temperature controlled land based facilities to allow the maturation of the sporelings (Meng Col. 1 line 66-68); a plurality of small aerated inoculation tanks (Meng Col. 2 line 34) enriched with defined nutrients under optimal conditions, to allow the mature sporelings to grow into seaweed pieces; and a plurality of large aerated cultivation tanks to transfer the seaweed pieces into to grow to full size (Meng Col. 2 line 40 "air 300 ml air/min").

Meng teaches the importance of aeration, but is silent on the use of seawater. However, Golueke teaches that it is old and notoriously well-known to cultivate the seaweed in seawater that is aerated (Golueke Col. 1 line 67 and Fig. 1 #21). It would have been obvious to one of ordinary skill in the art to modify the teachings of Meng with the teachings of Golueke at the time of the invention for a means of providing ideal artificial growth conditions by simulating some of the natural environmental conditions in which seaweed grows.

Meng as modified is silent on a plurality of tanks having a volume capacity of 400 liters. However, it would have been obvious to one of ordinary skill in the art to modify

Art Unit: 3643

the teachings of Meng at the time of the invention since the modification is merely the duplication of a known element for a multiple effect performing the same intended function. The plurality of tanks enables mass production in a cost effective manner and enables one to control different environmental conditions, stages of development, and nutrients in various tanks. Furthermore, it would have been obvious to one of ordinary skill in the art to further modify the teachings of Meng at the time of the invention with a desired volume capacity for the tanks derived through routine tests and experimentation based on the desired production rate and the size of the facility. This modification is merely a change in size to accommodate production needs efficiently and does not present a patentably distinct limitation [*In re Rose*, 220 F.2d 459, 463, 105 USPQ 237, 240 (CCPA 1955)]. It is notoriously well-known to have tank capacities of a depth that allows sufficient light for development and an economical use of land (merely cited as an example and not currently used as a grounds of rejection, examiner makes reference to U.S. Patent No. 6,156,561 to Col. 1 line 38-40; Col. 2 line 24-25; and Col. 3 line 54-55).

Regarding Claim 2, Meng as modified teaches a land based technology comprising a seeding unit producing spores (Meng Col. 3 line 6); sporeling production unit (Meng Col. 3 line 11); maturation unit (Meng Col. 3 line 16); cultivation unit (Meng Col. 3 line 20); harvesting; drying; and grinding (Meng Col. 2 line 4-6).

Regarding Claim 3, Meng as modified teaches the seaweed species grown in land based seawater ponds is *Porphyra* (Meng Col. 1 line 31).

Regarding Claim 4, Meng as modified teaches the nutrients added to the seawater are designed to produce a plurality of seaweeds that are used as neutraceuticals, food components, pharmaceuticals or cosmetics (Meng Col. 1 line 13).

Regarding Claim 5, Meng as modified teaches production of spores in petri dishes (Meng Col. 3 line 6); cultivation of sporelings in sleeves under environmentally controlled conditions (Meng Col. 3 line 16); growth in small and large tanks (Meng Col. 3 line 20 and col. 2 line 34-41). Meng is silent on separating the inoculation and harvesting into separate ponds. However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since the modification is merely the separation of known steps into replicated ponds for the efficient management of the system of having a continuous production at different stages and for more control over the environmental conditions at particular points in production.

Regarding Claim 6, Meng as modified is inherently programmable for production throughout the year since Meng teaches controlling the light and temperature conditions for the cultivating seaweed.

Regarding Claim 8, Meng as modified teaches the large cultivation tank contains suitable nutrients to ensure high yields of seaweed products (Golueke Col. 2 line 34).

Regarding Claims 13 and 17, Meng as modified is silent on the small aerated inoculation tanks have the volume capacity of about 40 liters, and the large aerated cultivation tanks have the volume capacity of about 4000 liters; varying sizes including 30-500 m² ; or the volume capacity of each of the sleeves is about 20 liters, of the tanks

Art Unit: 3643

used in stage 1 is about 40 liters, of the large tanks used in stage 2 is about 4000 liters, of inoculation ponds in stage 3 is about 30m² and the cultivation ponds used in stage ponds used in stage 4 of 500m².

However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention through routine tests and experimentation for efficient and optimized production sequence considering desired production quantity and the availability of land base.

Regarding Claim 12, Meng as modified teaches the importance of nutrients (Golueke Col. 2 line 34) and N:P nutrients are notoriously well-known fertilizers, but Meng is silent on seawater being enriched with 0.5mM NH₄Cl and 0.05mM Na₂PO₄, at least two times a week, for at least three weeks. However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention through routine laboratory tests and experimentation to derive the desired fertilizer application quantity and frequency based on different seasons of the year or the seaweeds development stage.

Regarding Claim 14, Meng as modified teaches the drying unit comprises centrifugation drums or low temperature ovens (Meng Col. 2 line 49).

Regarding Claim 15. Meng as modified teaches the seaweed species grown in land based seawater ponds include Porphyra (Meng Col. 1 line 31).

Regarding Claims 18 and 19, Meng as modified teaches the seaweed product of Porphyra (Meng Col. 1 line 31 and col. 4 line 66).

Art Unit: 3643

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,358,858 to Meng et al in view of U.S. Patent No. 3,195,271 to Golueke et al. as applied to claim 1 above, and further in view of Techniques of Laboratory Cultivation of Marine Algae, University of South Florida, St. Petersburg Dept. of Marine Science, Nov. 1983, page 42, 6, 7, and 40.

Regarding Claim 16, Meng as modified teaches the land based temperature controlled facility housing the plurality of sleeves, but does not implicitly teach a comprises a chiller to regulate the temperature (Meng Col. 4 line 68 and Col. 3 line 12). However, Techniques of Laboratory Cultivation of Marine Algae teaches that chillers are old and notoriously well-known selected pieces of equipment to achieve desired controlled temperatures (Techniques of Laboratory Cultivation of Marine Algae page 40). It would have been obvious to one of ordinary skill in the art to further modify the teachings of Meng at the time of the invention since the modification is merely the selection of a known mechanical equipment for means energy efficient means of achieving the controlled temperatures.

Claim Rejections - 35 USC § 102/103

Claims 18-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 5,358,858 to Meng et al.

If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was

Art Unit: 3643

made by a different process. The Porphyra is anticipated by U.S. Patent No. 5,358,858 to Meng et al. The process by which the Porphyra is made is not a patentable distinction

Response to Arguments

Applicant's arguments filed 11 July 2005 have been fully considered but they are not persuasive.

Applicant has not claimed that this particular method must be conducted outdoors and thus examiner maintains that applicant's claim limitations still read on the modified teachings of Meng. Also, Meng does not state that all of the cultivation steps are conducted indoors. It appears that Meng makes no reference to the steps being all performed indoors. It is old and notoriously well-known to utilize outdoor cultivation tanks for seaweed production (e.g. U.S. Patent No. 3,195,271 and U.S. Patent No. 6,156,561). Applicant has not presented limitations in the independent claims that clearly indicate either through structural equipment or method steps what would be conducted differently in an outdoor application versus an indoor application. A mere change in size for a larger scale operation does not present a patentably distinct limitation. One of ordinary skill in the art may be motivated to multiply the number of tanks for an increase in production yields or also in the instance of Meng one might be motivated to have a plurality of tanks to perform different experiments simultaneously. These modifications are base on general knowledge available to one of ordinary skill in the art.

Art Unit: 3643

Meng teaches washing the Porphyra with seawater (Meng Col. 2 line 20), but is silent on the contents of culture tanks. Thus one of ordinary skill must look to teachings and success of other systems and general knowledge in the field. Golueke is cited and has been examined in the full context and in its entirety. Golueke has been cited to teach that it is old and notoriously well-known to utilize seawater in the cultivation process. Merely cited as additional support to the argument that seawater is general knowledge of one of ordinary skill in the art Techniques of Laboratory Cultivation of Marine Algae, University of South Florida, St. Petersburg Dept. of Marine Science, Nov. 1983, page 6-9 (see attached). Examiner maintains that it would have been obvious to one of ordinary skill in the art to modify the teachings of Meng with the selection of seawater.

Meng as modified by Golueke teaches adding nutrients (Golueke Col. 2 line 34). Again the examiner would like to bring applicant's attention to cite prior art reference Techniques of Laboratory Cultivation of Marine Algae, University of South Florida, St. Petersburg Dept. of Marine Science, Nov. 1983, page 7 that teaches phosphate and ammonium additives are notoriously well-known cultivation additives.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

Art Unit: 3643

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Examiner maintains that the modifications made to the main teachings of Meng are obvious modification for one of ordinary skill in the art based on accepted wisdom in the art and are not gleaned from applicant's disclosure. The teachings of Golueke are provide as a secondary reference to illustrate the accepted wisdom in the field.

Golueke is cited merely to teach that it is old and notoriously well-known to cultivate the seaweed in seawater and that there is a known success in culturing in seawater and that it is known to produce seaweed on a commercial scale. It is irrelevant whether Golueke teaches the addition of sewage. The addition of sewage is merely the selection of an additional nutrient source. Changes to sizes and concentrations that are easily derived through routine tests and experimentation do not present patentably distinct limitations.

Applicant has merely claimed *Porphyra* and in the independent claims has merely claimed "seaweed". Meng makes reference to *Porphyra angust*, which is a species of the genus *Porphyra*. A generic claim cannot be allowed to an applicant if the prior art discloses a species falling within the claimed genus (MPEP 2131.02).

Porphyra angust is a species that falls within the genus of *Porhyra* and even broader genus of seaweed.

Therefore, the examiner maintains that applicant has not patentably distinguished over the teachings of the cited prior art.

Conclusion

Art Unit: 3643

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No.6,156,561.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea M. Valenti whose telephone number is 571-272-6895. The examiner can normally be reached on 7:00am-5:30pm M-Th.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Poon can be reached on 571-272-6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3643

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Andrea M. Valenti
Patent Examiner
Art Unit 3643

22 September 2005


Peter M. Poon
Supervisory Patent Examiner
Technology Center 3600

9/22/05